

Patent Claims

1. Substrate with a Fabry-Perot filter applied thereon comprised of at least three layers, with a first and a second reflecting layer with mutually facing reflecting surfaces of the filter spaced apart by a gap of thickness d and enclosing a light-transmissible intermediate layer located in the gap, characterized in that the reflecting layers (4, 6) are comprised of the same base material and the intermediate layer (5) is comprised of a chemical compound of this base material with a further material.
2. Substrate as claimed in claim 1, characterized in that the base material is a metal and the further material oxygen, such that the reflecting layers (4, 6) are metallic layers and the intermediate layer (5) is formed of a metal oxide in stoichiometric or nonstoichiometric composition.
3. Substrate as claimed in claim 1, characterized in that the metal is aluminum and the intermediate layer (5) is therewith comprised of aluminum oxide.
4. Substrate as claimed in claim 1, characterized in that the base material is a metal and the further material nitrogen, such that the reflecting layers (4, 6) are metallic layers and the intermediate layer (5) is formed of a metal-nitrogen compound in stoichiometric or nonstoichiometric composition.
5. Substrate as claimed in claim 4, characterized in that the metal is aluminum and the intermediate layer (5) is therewith comprised of an aluminum nitride.
6. Substrate as claimed in one of the preceding claims, characterized in that the first reflecting layer (4) adjoining the substrate (2) is opaque to light and the outer second

reflecting layer (6) is partially transmissible to light.

7. Substrate as claimed in claim 6, characterized in that the first reflecting layer (4) adjoining the substrate (2) has a thickness between 10 and 200 nm, the second reflecting layer (6) between 1 and 20 nm and the intermediate layer (5), depending on the desired property of the filter (1), between 50 and 2000 nm.
8. Method for the application of a filter on a substrate as claimed in claims 1 to 7, characterized by the following steps:
 - providing a vacuum coating facility with a vaporization device in an evacuable vacuum chamber and a material supply device,
 - charging the vaporization device with the base material,
 - closing the vacuum chamber and generating a vacuum therein,
 - vaporizing the base material exclusively such that it is deposited as a first layer on the substrate,
 - vaporizing the base material with the simultaneous introduction of the further material into the vacuum chamber such that the substrate provided with the first layer is reactively vapor deposited with an intermediate layer of the base material and the further material,
 - vaporizing the base material exclusively such that it is deposited on the intermediate layer to form a second reflecting layer,
 - opening the coating chamber and removing the coated substrate.
9. Method as claimed in claim 8, characterized in that the material supply device is a gas connection.
10. Method as claimed in claim 8 or 9, characterized in that the substrate to be coated is a web sheeting (25) which is unwound via a coating cylinder (26) located above the vaporization device.

11. Method as claimed in claim 10, characterized in that the vacuum chamber includes two stock rolls, the web for the vapor deposition of the discrete layers alternately wound from the one stock roll (30, 31) and wound onto the particular other (31, 30).